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Original Communications.

MODERN OVARIOTOMY.

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THE great mortality which formerly attended this operation has become a thing of the past in the hands of certain operators. Unfortunately for us, however, a large percentage of fatality still discourages the surgeon in this community. This is more especially true of New England, and above all of Boston, than of other parts of America. For in Philadelphia and New York, Atlee, Sims, Peaslee and Thomas have attained many favorable results, while here we can only infer the amount of success of ovariotomists by their reticence from publishing any detailed statistics of their cases.

But it is to England that we must look for the successful revival of this operation; and the wonderful percentage of recoveries attained by Mr. T. Spencer Wells have attracted to him patients from all parts of Europe; while his hospital is attended by physicians from the whole civilized world.

While in London, during the past summer, I enjoyed, through the courtesy of Mr. Wells, unusual facilities for seeing his operations and the after-treatment of his cases. I have, therefore, thought that an abstract of some notes taken on the spot might be of interest to the profession here.

While I was in London, Mr. Wells completed his five hundredth case, and the mortality had steadily declined, until in the fifth hundred, 80 per cent. recovered and only 20 per cent. died. A ratio of recovery of *four-fifths* is far above that of most other capital operations, amputation of the thigh being followed by a mortality of about 50 per cent.; strangulated hernia, 45 per cent.; and some being even larger.

So far as I observed, Mr. Wells's operations had the following peculiarities:

First—In diagnosis, established, in cases of doubt, by tentative tappings, microscopical and chemical examination of cyst contents, &c.

Second—In the least amount of handling of the patient possible; no one touching the abdomen but the operator.

Third—Celerity and decision in operating. This was very noticea-

ble; the time consumed, the period of exposure of the abdominal cavity, and the proportionate shock being much less than in other operations I had seen.

Fourth—Personal care in subsequent dressing and nursing. In this the operator was much aided by a corps of nurses, trained under his own eye in his hospital.

The Samaritan Hospital, for women and children, of which Mr. Wells is surgeon, is an ordinary London dwelling house of brick, five stories high. The stairway is in the centre, and the rooms, front and rear. Each room has an open soft-coal fire, a ventilator over the outer windows, and one opening into the central stairway. The latter has a ventilator at the head of the stairs. The hospital has been in use for twelve years. Sometimes there have been cases of septicæmia, when it was necessary to clear it out and whitewash. After operation the patient always has a room to herself.

During the year 1871 *fifty-six* operations of ovariotomy were performed here. The first successful operation was performed in 1858. Ovariotomy had been very fatal in the other London hospitals, thus: at St. Bartholomew's, 12 cases, 8 deaths; Middlesex, 8 cases, 7 deaths; King's College, 7 cases, 6 deaths; St. George's, 7 cases, 5 deaths; University College, 5 cases, 4 deaths; Guy's, 44 cases, 21 deaths; total, 83 cases, 51 deaths. At the Samaritan Hospital, 106 operations, 30 deaths. In other words:

In five large hospitals,	mortality,	76 per cent.
Guy's Hospital,	"	47 per cent.
Samaritan Hospital,	"	27 per cent.

These results show what can be done in smaller hospitals in comparison with the larger ones.

Case I. The patient was about 40 years old, not excessively large, and in good condition. She was placed on her back on a table, with the head and shoulders a little raised. She was strapped down by a broad webbing over the knees, and wristlets fastened to a strap, which passed under the table. The whole body was covered with a sheet of rubber cloth, with an oval cut out over the abdomen. The edges of this oval were made to adhere to the abdomen by adhesive plaster.

Bi-chloride of methylene was the anæsthetic used. About ʒ v. were consumed in half an hour. It was given cautiously with an atomizer. Mr. Wells has used no other anæsthetic for four years; he thinks it less likely to be followed by nausea. In about eight minutes the patient was asleep.

The first incision was about four inches long, from below the umbilicus to the pubes. He cut down rapidly to the peritoneum. Bleeding was checked by forceps left on. On opening the peritoneum the uterus presented itself below, and above this was the white cyst. A very large trocar, with clamps and tube attached, was at once plunged into the cyst, and as it collapsed it was seized with a

peculiar vulsellum and drawn up under the hooked clamps. This cyst was of moderate size; another, and larger one, immediately appeared above it. The external wound was now slit up above the umbilicus. The first cyst was seized with strong forceps, and the opening pinched up. The trocar was then plunged into the second cyst, from which a large quantity of fluid escaped. This also was dragged up under the hooked clamps, and by strong traction pulled out of the abdomen. There were no adhesions.

The second cyst was now dragged entirely out, the clamp put on and the pedicle cut, without hæmorrhage. The first cyst was then easily dragged out, clamped and cut in the same way.

Thus double ovarian disease was removed; both ovaries extirpated, and both broad ligaments clamped. The sides of the wound were held together by an assistant.

Mr. Wells now passed a large soft sponge into the abdomen, and left it. He then rapidly passed sutures of silk, with two needles, from within outwards; taking stitches alternately at either end. The sponge was withdrawn the last thing, and the wound closed with eight sutures. There was very little hæmorrhage, and no fluid escaped into the abdomen.

Not satisfied with the large protruding pedicles and two clamps, he now passed a large needle through the pedicles, and tied them up around it with hemp twine. Finally he took away the clamps, and cut away the projections of the pedicle. The wound was padded around with bits of sheet lint; and strips of plaster drawn across; higher up, a large wad of fine cotton, and more adhesives. The patient was then immediately removed, dry, to bed.

She was on the table about half an hour, owing to the delay for the final arrangement of the pedicles. She retained a good color, pulse and warmth; there was no vomiting. The temperature of the room was about 80°; a warm June day, with the windows open. No disinfectants were used. The urine was to be drawn every 6 hours. A little opium given to relieve pain, if needed. The sutures to be removed the fourth day. The clamp to be left to come away of itself, usually about the seventh day. The wound to be dressed dry; no moist applications. Lint to be changed when soiled.

I last saw this patient on the *sixth* day, doing well; the sutures were out, and the pedicle partially sloughed away. She was eating quail. I afterwards learned that she recovered.

Case II. Patient older, tumor larger, marks of two tappings. Four drachms of bi-chloride of methylene. Incision of four inches. On opening the peritoneum an ascitic fluid ran out. The hand was passed in between the abdominal parietes and the cyst, and adhesions were broken down. The cyst was tapped; the trocar clamps hooked on, and an attempt made to deliver the cyst, but in vain. The cyst was then slit open with a knife, and the two cut sides seized with forceps and held open. The hand was passed into the

cyst, and numerous others broken down and evacuated. The cyst was then dragged out, and an attachment to the omentum torn away. Near the pedicle, the cyst was found to be attached to the side of the uterus, by inflammatory adhesion. The pedicle was clamped and cut. Then the large adhesion was transfixed with a needle and ligatured, and divided. There was a good deal of hæmorrhage. This was checked with silk ligatures. These were cut short off, and returned into the abdomen. The pedicle was finally secured with silk ligatures, and the clamp taken off. The pedicle was dropped back into the abdomen. The omentum was ligatured at several bleeding points, and the thread cut short off. The ragged omentum was trimmed, and the whole returned into the abdomen. The wound was closed by nine silk sutures. *Nothing was left outside.* The abdominal cavity was freely sponged out, and the omentum left out fifteen minutes. The patient had to be stimulated a little. I saw this patient on the *fifth* day, doing perfectly well. The sutures were out, and the wound closed by first intention. On returning to London in September, I learned that she had recovered.

CASE III. Patient was middle-aged, somewhat reduced, abdomen large. From first incision to clamping and cutting pedicle, only eight minutes. The abdomen was open fifteen minutes. The patient was back in bed in thirty minutes. No vomiting; good color; gentle, warm perspiration when put to bed. Anæsthesia not very profound. The cyst was very thin, and was punctured with the knife on opening the peritoneum. No trocar was used. Other cysts within it were punctured, broken down and emptied. The mother cyst was a little adherent to the omentum and the peritoneum. The cyst was separated from the abdominal walls, by the hand inside of the cyst; Mr. Wells considering this the best way, as there is thus no risk of stripping off the peritoneum. The pedicle was small, and was clamped. I saw this patient on the fourth day, doing well. She recovered.

CASE IV. Mr. Wells stated this to be a doubtful case. An exploratory incision revealed a large, solid, vascular, uterine tumor, and a cyst above it and adherent to it. This cyst, when tapped, gave exit to a bloody fluid, in large quantity, but when tapped before the operation, it had shown a pure ovarian fluid. The cyst could neither be removed nor brought to the surface to drain, so it was emptied, and the abdomen sewed up. This patient recovered from the operation.

Three of these operations were in private houses. Mr. Wells selects a room at the top of the house, and has a soft-coal open fire. The sponges are cleansed with sulphurous acid, and warmed at the fire. He gives a good diet as soon as the patient wants it. The urine is drawn every six hours. The bowels moved after the 7th day. No one dresses the patient but Mr. Wells. He relies a good deal on the temperature, which is taken frequently. He says it is the little things that tell. He does not believe the operation is followed

by any more shock than an amputation. The absence of shock, in the cases I saw, was one of the most remarkable peculiarities.

He says the ligatures, cut short and dropped in, take care of themselves. No carbolized ligatures are used; plain silk, or hemp.

His assistant told me that he made an autopsy a year after the operation, where the ligatures were left in, and he could barely find a trace of them.

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IN-FLESHED TOE-NAIL.

A NEW OPERATION FOR RADICAL RELIEF.

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The selection of a suitable name for this extremely painful and persistent affection seems to have puzzled authors almost as much as has its etiology and proper treatment. It is called by them Ingrowing, In-grown, Incarcerated, and Incarnated Toe-nail—all misnomers except the last, if the term is intended to indicate the cause and nature of the malady. *In-fleshed Toe-nail* may not be thought an improvement, but it does not involve a theory, and sufficiently describes the condition as usually presented to the practitioner.

The affection has been known and appreciated from time immemorial, yet still remains one of the minor opprobria of our art. It is not necessary, however, to go over its history or to recount the numerous expedients for its relief, as the object of the present paper is to call the attention of the profession to a new, and, it is believed, an effective operation for the complete removal of the disease, applicable alike to all varieties and stages of its development. Any one who wishes it may learn how thoroughly the ancients understood such matters in *Paulus Ægineta* (Translation and Commentaries by Adams, Syd. Soc. Ed.) vol. ii. pp. 414–415; can find an elaborate essay on the causes, varieties, and treatment of the disease in *Dupuytren's Clinique Chirurgicale*, vol. iv. pp. 379–413; can obtain an analysis of the doctrines of later writers in *Chelius's Surgery*, by South, vol. i. pp. 221–229, and of the practice of fifteen of the foremost French surgeons in *Table Anal. du Journal de Méd. et Chir. Pratiques*, 1850–69, p. 337; can get an authoritative sketch in *Holmes's Surgery*, vol. iv. pp. 795–6, an account of the practice in different London Hospitals in the *Lancet*, May 29, 1869, pp. 747–8, and the last dictum in Gross's great work, vol. ii. pp. 1042–3, revised and issued from the press in 1872. Moreover, most text-books and manuals have a word to say about it; and many reports of cases, and special projects in superabundance, have lately appeared in Medical Periodicals at home and abroad—indicating the still un-

settled views of practitioners, and their dissatisfaction with methods of treatment hitherto devised. Indeed, it was undoubtedly this recent manifest dissatisfaction and disagreement on the part of the profession that induced a call for a re-statement of the operation now to be described (*see Boston Med. and Surg. Jour.*, Oct. 3d, 1872).*

Our operation consists in removing, with the knife, by a single stroke, all the diseased parts, *together with quite a large piece of the sound flesh, skin deep, from the side of the toe*—sometimes making an open wound of, say, nearly an inch long by half or three-fourths of an inch wide. No portion of the nail need be removed; but if, in order to fully secure all the diseased flesh, overlapping or undergrowing, a segment of the nail is involved in the cut, no harm comes of it. The result is quite as good, perhaps better.

Although the operation requires but a moment, and is not much more painful than the removal of an equal portion of healthy flesh, it is generally advisable to put the patient under ether for its performance. Occasionally a hardy fellow will submit to it without the anæsthetic.

By this operation, in the first place, all the diseased parts are removed at once, and a clean, healthy wound substituted; to be treated as any other open freshly-cut wound, and to be allowed to heal as soon as possible by granulation. Generally, the healing is rapid, and without interruption.

In the second place—and this is the principle on which success depends—as the comparatively large and superficial wound heals (a cicatrix being always much less in size than the original wound) there is a contraction of the parts, and a drawing-in of the skin towards the centre from all sides, including, of course, that near the nail; so that when the wound is healed there is nothing left in the way for the nail to impinge upon in its subsequent normal growth. The shape, also, of the toe itself is usually much improved by the operation.

Thus, as may be seen, the operation is a very simple one; but it differs from all others hitherto described, in itself, and in the principle on which it is founded—that of cicatricial contraction. That it is effective may be inferred from the fact that, after many trials during twenty or more years, no case of failure has yet occurred; at least no patient has yet returned to complain of its want of success. Recurrence after other procedures is common enough. This operation has been repeatedly and completely successful when the usual methods, scraping, paring, compressing, packing with lint, uplifting or separating the nail from the flesh by metallic or other substances, removal of "fungous," "callous" or other formations by caustic or the knife, evulsion of a part of the nail at the side, or the whole of

* Prof. Vanzetti has, within the past half year, published in Venice a folio, of 120 pages, on this disease, advocating the application of the nitrate of lead. The work has not yet been received in this country.

it—the last, "the only method really serviceable" (Erichsen), a "barbarous practice" (Gross)—and other measures of more or less "cruelty," had been tried in vain.

It would not be very difficult to hunt up a goodly number of cases illustrative of the successful results of the new operation, some of which have been years under occasional observation; one or two instances will suffice.

Only a few days after this paper was asked for, a case of the acute form of the disease offered for treatment. It had existed but two or three weeks, yet had already become intolerably painful, and so sensitive as to prevent walking and to quite lay up the patient. In anticipation of the possible use now to be made of it, a photograph was taken, from which the figure in the margin, No. 1, was copied.

1.

This figure will give a better idea of the parts and their diseased appearance than any verbal description. At an appointed time, the patient was etherized, and a portion of the toe was removed in the manner above described. The dotted lines in the figure mark the place of entrance of the knife, and also of its exit at the end of the toe—the width of the section at the side being about twice that seen in the picture. The wound was dressed with lint, merely. There was little or no subsequent suffering. The patient kept the bed only a day or two, and in two weeks went to church without difficulty. In four weeks, the recovery was complete.

After full recovery, another photograph was taken which gives (figure 2) a very good representation of the toe in its present condition. The flesh is drawn quite away from the edge of the nail, which now grows out quite naturally. All the functions are restored.

2.

3.

Figure 3 represents the present appearance of a toe operated on about two years ago for the disease in a chronic form. Both sides of both toes of this patient were badly affected, and had, during the previous ten or eleven years, resisted all kinds of treatment, even evulsion of the nails. Both toes were operated on at the same time—making four operations. No troublesome event followed. Three of the wounds healed rapidly; the fourth, though somewhat slower, soon did well, with only simple dressings. At the time of the operation, the toes were painfully ulcerated, much swollen, and club-shaped.

Walking had often been impossible. Now they are painless, of proper dimensions, and quite presentable in appearance. Ever since the operation, walking has ceased to be difficult, and is now performed with pleasure. No disease remains.

Roxbury, Boston, December, 1872.

Clinical Lecture.

ON THE PRIMARY DENTITION OF CHILDREN.

By FRANCIS MINOT, M.D. Harv.,

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GENTLEMEN,—The subject of our lecture to-day is the Dentition of Infants, one which it is important that you should be perfectly familiar with, otherwise you will be frequently embarrassed in the treatment of the diseases of a large class of those who are to come under your care. I have been struck with the fact that many young practitioners have but an imperfect acquaintance with the order in which the deciduous teeth make their appearance, and with the time of irruption of each successive group. Nor is this ignorance always confined to beginners. Physicians of many years' experience are sometimes unable to answer questions on this subject which should be familiar to every three-years' student. Not only does the condition of the primary dentition furnish an important element of prognosis in regard to the future development of the child, but any considerable departure from its normal process is apt to be attended by injurious consequences to his health. It has been well said by Vogel that although it cannot be maintained that all healthy children cut their teeth in the usual order and time, yet this much is certain, that those children who follow this order suffer the least from the difficulties and sequelæ of dentition. We will, therefore, consider now what is the normal order and time of the appearance of the temporary teeth.

You are all aware that the teeth in the human subject consist of two sets; the first of which, called the temporary or deciduous, and sometimes the *milk* teeth, twenty in number, which appear during infancy; and the second, or permanent set, thirty-two in number, occupying the period between early childhood and adult life. I need hardly remind you that the germs of both sets lie hidden in the jaws of the fœtus long previous to the time of birth; but we are now only concerned with the appearance above the gum, or, as it is familiarly termed, the *cutting* of the first set—in other words, with the primary dentition.

The primary dentition begins normally between the sixth and seventh month, proceeds in a definite order, and is completed at the age of two years and a half, or a little later. Exceptions to this sometimes occur in healthy children, but they are rare, while in those of delicate constitution, or where development is retarded from various causes, there is often delay or irregularity in the evolution of the milk teeth. Hence, an acquaintance with the order of succession of these serves as a means

of estimating the general state of the constitution and the degree of development of young children. Moreover, as we shall see shortly, numerous questions concerning alimentation and the diagnosis, prognosis and treatment of disease in these subjects can only be satisfactorily answered by means of this knowledge.

Authorities differ somewhat as to the order in which the first teeth appear, as well as to the time of their irruption. I have found the data given by Dr. Eichmann, founded upon the observation of 400 children, to correspond pretty exactly with my own experience; and it is sanctioned by the high authority of Dr. Schoepf Merei, of Pesth, by M. Trousseau, by Vogel and others. Dr. Eichmann states that the twenty deciduous teeth make their appearance in *five groups*, at five distinct periods, and in the great majority of cases in the following order:—the first group consists of the two lower median incisors, which generally appear between the 28th and the 33d week. In only three instances out of the 400 children did the first lower incisor appear as early as the 20th week, the next tooth, however, not appearing before the 31st week. Judging from my own observation, I should put six and a half months as the average date of the appearance of the first tooth. The second tooth frequently follows the first within a week, but it is not unusual for two or three weeks to elapse before the first group is completed.

The second group consists of the four upper incisors, of which the two central ones are the first to appear, the completion of the whole group requiring from three to six weeks. When a child has six teeth, therefore, there are four in the upper jaw and two in the lower. Trousseau observes that this fact, known to every woman who has had the care of young children, is strangely ignored by medical men, even by some who have written upon the very subject of dentition—and I am inclined to believe the observation is true of some practitioners of America, as well as France.

The third group includes the two lateral lower incisors and the four anterior molars. Generally, the upper molars are the first to come, next the lower incisors, and lastly the lower molars.

The fourth group consists of the four canine teeth, of which the two upper are called the eye teeth, and the two lower the stomach teeth.

The fifth group comprises the four posterior molars.

Although there are exceptions to the above order, yet they are rare in healthy children. There is more variation in the age at which each group begins to appear, as well as in the length of time required for its complete evolution; but within certain limits the period is tolerably exact. The average age at which the first tooth pierces the gum may be stated at six and a half months, and the group is usually completed at seven months. The second group usually begins to appear at the age of nine months, and requires six weeks for its completion. The third group appears at the age of twelve and a half months, and is completed at fourteen months. The fourth group usually begins at eighteen months, and often requires eight weeks, and sometimes longer for its completion. The fifth group does not commonly appear before the age of twenty-six months, and also takes at least eight weeks before it is finished.

An important fact in the history of the primary dentition, and which must never be lost sight of by the practitioner, is, that after the

irruption of each group, there is a pause of longer or shorter duration, which is quite constant for each interval. Thus between the first and second group there is a pause of two or three months. Between the second and third group the interval is of about two months' duration. Between the third and fourth group the interval is of from four to five months. Between the fourth and fifth group there is a pause of five months. I will arrange all these data in a tabular form, so that you may more easily comprehend them, and retain them in the memory.

1st group begins at 6½ months—completed at 7 months.
Pause of 2 or three months.
2d group begins at 9 months—completed at 10½ months.
Pause of 2 months.
3d group begins at 12½ months—completed at 14 months.
Pause of 4 to 5 months.
4th group begins at 18 months—completed at 21 months.
Pause of 5 months.
5th group begins at 26 months—completed at 30 months.

During the intervals between the successive groups the process of dentition is arrested, and the symptoms to which it often gives rise subside. The child is tranquil, sleeps well, is free from nervous and inflammatory troubles. Now is the time when any change which is to be made in the diet, mode of life, &c. should be begun. The important question of weaning should always be considered in reference to this period. If the mother be robust, and have plenty of milk, the child may be allowed to nurse, at least in part, with advantage until the fourth group is completed, when there will be an interval of five months in which he will be free from danger of convulsions or diarrhœa, and will have ample time to get accustomed to his new diet. Unfortunately, in a large number of cases, especially in cities, the supply of milk and the mother's strength require the child to be weaned earlier, and then, if possible, this should be done immediately after the completion of the third group, when the interval, though shorter than that which follows the canines, will yet be sufficient to permit the infant to get used to an artificial diet before the fourth begins to appear Of course, you will not be governed by the state of the teeth alone in this important question; other considerations, especially the season of the year, the mother's health, and the supply of breast milk will have due weight; but I wish to urge upon you that in the case of delicate children, with a tendency to nervous or inflammatory symptoms, weaning can be much more safely accomplished during the intervals between the successive groups of teeth than at any other time. With perfectly healthy and robust children such precautions are not always necessary, but in delicate, town-bred infants, in those which show any disposition towards convulsions, diarrhœa, hydrocephalus, or that indefinite array of symptoms which are often styled "scrofulous," they cannot be neglected without risk.

The *complications* of dentition in infants are chiefly manifested in those reflex phenomena which are due to the predominance of the spinal functions over those of the brain in early life. It is a law of the economy that in proportion as the influence of the cerebrum is suspended, or cut off, the energy of the reflex function of the spinal system is increased. Thus, during sleep, when the action of the brain is suspended, the exaltation of this function is shown by the sudden starts

which may be excited by any external irritation, as tickling the soles of the feet, &c.; and the same thing may be observed in persons whose attention is completely absorbed, as while reading. So when the cerebral influence is cut off by disease or injury of the spinal cord or brain, the reflex phenomena excited by external irritation are much more energetic than in health. This you have occasionally seen exemplified in the hospital; the soles of the feet in a hemiplegic patient being tickled, the paralyzed limb will be drawn up quickly, sometimes violently: while the other limb, over which the will still has control, may not perhaps move at all. In cases of paraplegia, this involuntary twitching of the legs sometimes arises from the accidental irritation of the feet by the contact with the bedclothes, and is then a source of much annoyance to the patients. Now the development of the brain in infancy is comparatively imperfect, and its functions are feeble, and to the predominance of the spinal over the cerebral system is due the great frequency of convulsions and other disorders at this period of life. Whether the external irritant be the pain caused by the pressure of the tooth on the gum, or the presence of indigestible food in the intestines, or worms in the rectum, an impression is sent to the cord by an afferent nerve, an impulse is carried to the muscles by an efferent nerve, and the result is those violent and irregular muscular contractions which we call spasms or convulsions.

The convulsions of dentition sometimes come on without premonitory symptoms, the child being apparently in good health at the time; but they are frequently preceded by twitchings, wakefulness, vomiting, crying and other symptoms of disturbance. A fit generally begins by twitching of the muscles of the face, which becomes pale; the eyes are at first fixed and staring, and then turned strongly to one side; the whole body becomes rigid, the limbs became violently flexed and extended, while the head is often thrown to one side, and drawn backwards. The jaws are clinched and the tongue is often bitten. The breathing is at first suspended, so that the face soon grows livid, then it becomes very rapid and noisy, a little foam (sometimes bloody, if the tongue have been bitten) issuing from between the teeth. In a large number of instances the fit lasts but a few minutes, but occasionally it is hours before the movements cease. In any case, the child remains unconscious for a considerable time after the fit is over.

In a considerable number of cases an infant never has more than one fit, but often they are repeated, and sometimes with every tooth that is cut.

The first few times you are called to a child in a fit, unless the attack be over when you reach the patient (which, fortunately, is often the case), you will probably be puzzled to know what to do. The child will, perhaps, have been parboiled by being plunged into a hot bath; he has been anointed with goose grease, and poulticed with onions, *usque ad nauseam*; ipecac has been forced down his throat, and soapsuds into his rectum. The family is in consternation, and in their eagerness to tell you what they have done (which is the thing uppermost in the minds of a great many patients when they consult a doctor) you will find it difficult to get any account of the symptoms of the case. Recollect that in most cases there is very little to be done. The attack will generally come to a favorable end without any interference. In case it should show no signs of abatement, the best remedy is ether

by inhalation. As soon as the patient comes under its influence, the spasmodic action of the muscles will cease, and he will soon fall into a quiet sleep, from which he should not be roused for hours. At your second visit, the gums should be carefully examined, and an incision should be made across any one which is swollen and hard, and such general directions as to the diet and hygienic treatment may be given as the case seems to require. Your opinion will be asked as to the danger of a recurrence of the convulsions. In answering this question, you will be guided by the general state of the patient's health, and partly by the progress which the dentition has made. If the child be feeble and delicate, with a large anterior fontanelle, at the age of twelve months, there is reason to fear an irritability of the nervous system which will find expression in convulsions when there is much peripheral irritation. So if the fourth group of teeth are just beginning to appear, there is danger that the attack will recur, perhaps more than once, before all the canines are through the gum. If, on the other hand, the child be well developed and healthy looking, if the hygienic surroundings are good, if one group of teeth is nearly completed, then there is reason to hope that the convulsions may not recur.

When a child seems predisposed to convulsive attacks, or if it have had more than one attack, the bromide of potassium will often be found of great service as a prophylactic. This medicine owes its value in these and similar affections to its remarkable sedative power over the reflex function of the spinal marrow. From five to fifteen grains, according to the age of the child, may be given at a time, when there is threatening of convulsions, and this dose may be repeated twice or thrice daily, according to circumstances. In many cases it will be found to be perfectly efficacious. Formerly, assafœtida, in enema, was given for this purpose, but the bromide is much more certain in its effects, besides far less disagreeable. Many children who are subject to convulsions during teething are pale, ill-nourished and feeble. The best prophylactics for such children are cod-liver oil and some preparation of iron. Of the former, from half a teaspoonful to a teaspoonful may be given three times daily. With regard to iron, there is no choice among the large number of preparations except so far as facility of administration goes. I usually prescribe the tartrate of iron and potassa for children, because it is less disagreeable to the taste and less constipating than most others. From two to five grains may be given, three times daily, dissolved in sweetened water.

The diarrhœa which sometimes complicates teething is chiefly of importance during hot weather. It varies in amount from a little looseness of the bowels to a large number of discharges daily. In any case, you should watch it carefully, and endeavor to restrain it if it become at all urgent. Formerly, a little diarrhœa was thought to be rather beneficial than otherwise during the cutting of a tooth, but I believe this opinion is no longer held. At any rate, I advise you to give it no quarter in hot weather, as it then too often ends in cholera infantum, a disease which destroys from 50 to 80, or more, children every week in this city, in the summer months. On the first appearance of any looseness of the bowels, the teeth should be carefully looked to, and the gums lanced, if necessary. If there be evidence of indigestible food in the intestine, a laxative of castor oil or rhubarb may be given. After this has acted, the remedies to be employed are

astringents and sometimes opiates. The common chalk mixture answers very well in many cases, in the dose of one or two teaspoonfuls, repeated as often as required. I am in the habit of adding to this one-fourth part of tincture of kino, which increases its astringency, and also keeps it from turning sour in hot weather. The dose is the same. If the diarrhœa be not checked by this mixture, one drop of laudanum may be added to a dose of it, but not oftener than three times a day, in children under 2 years old. Diarrhœa is most apt to attack children who are brought up on the bottle; hence, if the case be urgent and do not yield to treatment, a wet nurse should be procured if possible. When this cannot be done, I would strongly recommend the method of preparing the milk with arrow-root and gelatine, which is to be found in the treatise on Diseases of Children, by Drs. Meigs and Pepper, and which Dr. Charles P. Putnam speaks so favorably of in his valuable and interesting article on *Artificial Food for Young Infants*, which was printed in the *Boston Medical and Surgical Journal* for Aug. 1st, 1872. Recollect that these young subjects run down rapidly, and that the treatment and diet must both be of a sustaining character. There is nothing which seems to be so useful to a teething child exhausted by diarrhœa as brandy, which should be given once in three or four hours, or oftener in urgent cases. The dose is from five to twenty-five drops ordinarily—but if there be much prostration you need not fear to increase the amount. It is best given in milk.

Wine-whey suits many children admirably when they are suffering from diarrhœa. It should be diluted about one-half for infants, and may be given in large quantities instead of the ordinary diet. You will often be asked how to make it; the proportions are, a wineglassful of sherry wine to a tumblerful of milk; heat the milk, and just as it begins to boil, pour in the wine. In a few minutes the curd separates and the whey may be strained off. It should be sweetened.

You must not suppose that either convulsions or diarrhœa are inevitable during dentition. With healthy children who are nursed they are exceptional. But it is rarely that even healthy children escape without some indisposition while cutting their teeth. In most cases, this amounts only to fretfulness, wakefulness, loss of appetite, slight delirium, &c. Occasionally, I have seen a child lie in a state approaching to stupor for several days, without any other symptom, its condition being evidently due to the process of dentition. There are cases of genuine, though slight, traumatic fever. They usually require no treatment beyond shelter from noise and light, a somewhat restricted diet, and bromide of potass. or small doses of Dover's powder (one to two grains) at night, with plenty of water to drink.

Population of the Globe.—There are on the globe 1,288,000,000 souls, of which 360,000,000 are Caucasians; 522,000,000 are Mongolians; 190,000,000 are Ethiopians; 176,000,000 are Malayans; 1,000,000 are Indo-Americans. There are 8,642 languages spoken, and 1,000 religions. The yearly mortality of the globe is 42,043,000 persons. This is at the rate of 115,200 per day, 4,800 per hour, 80 per minute. Among 10,000 persons, one arrives at the age of 100; one in 500 attains the age of 80; one in a hundred to the age of 70. In 100 persons, 95 marry.—*Med. Record.*

Progress in Medicine.

REPORT ON MEDICAL CHEMISTRY.

By Edward S. Wood, M.D.

The present being the first of the series of reports on Medical Chemistry, no attempt will be made to confine it strictly to those improvements and discoveries made within the last six months, but new tests and new methods of analysis which have been practised for a longer time will be mentioned, if they are considered of sufficient importance. It may be necessary, too, in the following report, to refer frequently to tests which have been long familiar to chemists, and the fact that they have escaped from the mind of the busy practitioner will be my apology for recalling by a brief description the methods for the performance of some of the most common and important of them.

Detection of Blood Stains.—Fres. Zeitsch. f. Anal. Chem. (1872, ii. p. 244) contains a note from Dr. Helwig, contradicting a statement made in the *Chem. Centralbl.*, 1871, p. 37, that a solution of blood pigment in iodide of potassium cannot be used for the production of blood crystals, but only for spectroscopic examinations. It has long been known that a solution of iodide of potassium will extract from clothing the slightest trace of blood coloring matter, it being possible to obtain a solution suitable for testing even when the clothing has been washed, and the stain is very old. In the present instance Dr. Helwig exhibited a specimen of hæmin crystals, which he had obtained by treating a piece of linen upon which a bloodstain had existed for sixteen years, with a solution of iodide of potassium. The residue left after the evaporation of one drop upon a glass side, gave beautiful hæmin crystals upon the application of Teichmann's test, when the remainder of the solution, examined by the spectroscope, gave an absolutely negative result.

Teichmann's test, the ordinary test for hæmin crystals, is performed by rubbing upon the dried residue in a watch glass or on a microscope slide a very small quantity of ammonic chloride or common salt, adding to the mixture a drop of glacial acetic acid, and warming until bubbles form under the covering glass, showing that the boiling point of the acetic acid has been reached. Upon cooling, crystals of hæmin can be detected by the microscope.

In the same journal (1872, i. p. 29) we find mentioned by H. Struve an additional test for blood pigment, which is applicable to the testing of both urine and clothing stains for blood. This test is based upon the precipitation of hæmatin from an acetic acid solution by tannic acid as tannate of hæmatin, and may be performed in the following way. To the urine or any other liquid suspected to contain hæmatin is added a little ammonia water or potassic hydrate, then a solution of tannic acid, and finally acetic acid, to distinctly acid reaction. If hæmatin be present, a reddish-brown precipitate, tannate of hæmatin, is formed, which quickly settles and can be very easily washed and collected on a filter. This precipitate, after drying, gives a residue with which we can obtain hæmin crystals by performing Teichmann's test. This test is far superior to Heller's test for blood in the urine, in which the hæmatin is mechanically carried down with the earthy

phosphates, after the addition of ammonic or potassic hydrate. By the above method the author claims to have detected the presence of blood when all other reactions have failed; for instance, in urine when he could not detect the albumen by any of the ordinary tests. In 20 cc. of urine to which 0·023 per cent. of blood was added, a precipitate was obtained which permitted numerous examinations for hæmin crystals to be made by Teichmann's test.

The same author (*Fres. Zeit.*, 1872, ii. p. 150) states that he has separated from the blood two new coloring matters. One is soluble in alcohol and water, difficultly soluble in ether, and forms, when dry, a dark greenish-brown mass which chars without puffing up, and after ignition leaves a residue consisting of oxide of iron, phosphoric acid and silica. It is precipitated from its solution in water by acids, and the application of Teichmann's test does not yield hæmin crystals. The other pigment separates in the form of dark bluish-black microscopic crystals, reminding one of indigo. These crystals are insoluble in water, alcohol, ether, chloroform and acids, but are soluble in alkalies with the production of a dark-brown solution. If precipitated from the alkaline solution by acetic acid, and the precipitate subjected to Teichmann's test, the result is the most beautiful hæmin crystals. Concentrated sulphuric and nitric acids dissolve this pigment with a greenish-yellow color, concentrated hydrochloric acid and aqua regia decompose it, and glacial acetic acid is without action upon it unless ammonic chloride has been previously added, in which case it dissolves it, forming a dark-brown solution, which upon evaporation yields large pure hæmin crystals. After ignition the residue consists of pure oxide of iron. These crystals he considers to be identical with Virchow's hæmatoidin. An elementary analysis of these pigments is promised.

Conversion of Bilirubin into Urinary Coloring Matter. Richard Maly (*Annal d. Chem. und Pharm.*, 1872, vii.) has succeeded in transforming the principal biliary pigment, bilirubin (Cholepyrrhin) $C_{16}\ H_{18}\ N_2\ O_3$, by means of nascent hydrogen, into another pigment termed by him hydrobilirubin, which exhibits the same properties as one of the coloring matters of the urine described by Jaffé (*Virchow's Archiv.* Bd. xlvii. p. 405) under the name of urobilin, and is, without doubt, identical with it.

If sodium amalgam be added to an alkaline solution of bilirubin, or to water in which the bilirubin is suspended, the nascent hydrogen, produced by the decomposition of the water by the sodium, changes the bilirubin into a pigment, the larger portion of which is precipitated by hydrochloric or acetic acids as a dark red flocculent precipitate, which has no longer the chemical properties of bilirubin, except that it is soluble in the alkalies and precipitated by the acids. It is not entirely precipitated by acids, a portion remaining in solution, and imparting to the liquid a garnet or a rose-red color, according to the degree of concentration. It is a reddish-brown, uncrystallizable body, appearing when in thick layers green by reflected light. It is but slightly soluble in pure water, and easily soluble in alcohol, chloroform, alkalies, alkaline carbonates, and the phosphate and glycocholate of sodium, the solution in chloroform having a yellowish-red color, and the alkaline solutions being brown when concentrated and amber yellow when dilute. It is precipitated by the salts of zinc as a dark-red flocculent precipitate, soluble in ammonia. If an alcoholic or alkaline

solution is diluted to such an extent as not to be precipitated by acids, and hydrychloric or acetic acid is added until the reaction is acid, or until the solution loses its yellow color and becomes reddish or rose-colored; a layer of the solution, ¼ to ¾ of an inch in thickness, placed before the spectroscope, shows a well-defined absorption band between the Fraunhofer lines b and F. If the solution is concentrated the entire violet end of the spectrum is dark. If this solution is now made alkaline, an absorption band is still shown between b and F, but nearer b than before. Ammoniacal solutions of this pigment show a beautiful green fluorescence, especially after the addition of chloride of zinc. This fluorescence is destroyed by acids, but made to reappear by the addition of ammonic hydrate.

All of these properties are identical with the coloring matter obtained by Jaffé in small quantities from normal urine, and in much larger quantities from high-colored urines by precipitating the urine, after the addition of ammonic hydrate and filtering, by chloride of zinc, washing the precipitate obtained with water and alchohol, drying, dissolving the precipitate in ammonic hydrate, precipitating this colored solution with acetate of lead, and decomposing the lead precipitate with alcohol which contains sulphuric acid. After filtering from the sulphate of lead formed, an acid alcoholic solution is obtained which exhibits all of the reactions of hydrobilirubin: namely, the change of color upon the addition of an alkali from a garnet-red or rose color to a yellowish or finally to a greenish tinge, which change can also be seen by adding an alkali to high-colored urine; the characteristic absorption band between b and F, which can also be seen by examining high-colored urine with the spectroscope, often not before diluting it considerably; and the fluorescence of the ammoniacal solution, especially marked after the addition of chloride of zinc.

This conversion of bilirubin into hydrobilirubin (or urobilin) takes place within the body by the action of the same agent which was used by Maly in his experiments: namely, nascent hydrogen. According to Magendie and Chevreul, free hydrogen gas constitutes 50 to 55 per cent. of the entire volume of gas in the small intestine, the amount varying largely, however, with the diet. The bilirubin being poured into the intestine with the bile, and meeting with nascent hydrogen in its course to the colon, is converted into hydrobilirubin, which is absorbed into the blood and is eliminated by the kidneys. As a proof of this we have the fact that hydrobilirubin has been found in the coloring matters obtained from the small intestine (Messrs. Vaulair and Masius, *Centralbl. f. d. Med. Wissensch.*, 1871, No. 24), and also in oxen's blood on its way from the intestine to the kidneys. Maly considers Thudicum's "urochrom" and Scherer's "urinary coloring matter" to be impure hydrobilirubin. Nascent hydrogen has exactly the same effect upon biliverdin as upon bilirubin, hydrobilirubin being produced.

Test for Indican (Uroxanthin) in the Urine. (Stockvis, *Fres. Zeit.*, 1872, i. p. 112.) By heating the urine with double its volume of common nitric acid to 60° or 70° C. and shaking with chloroform or ether, the latter re-agents are quickly colored violet blue if indican is present, on account of dissolving the indigo blue (uroglaucin) formed by the decomposition of the indican. The ether or chloroform solutions can then, if desirable, be examined by the spectroscope, and show the absorption band between the Fraunhofer lines C and D. The depth of

color of the chloroform solution can be made a relative test for the amount of indican present, as well as in Heller's uroxanthin test; Heller's test is, however, preferable.

Modified Pettenkofer's Test for detecting the Presence of Biliary Acids in the Urine. (G. Strasburg, *Archiv. d. Physiol.*, Bd. iv. p. 461.) This test is applied in the following way: The urine to be tested is mixed with a dilute solution of cane sugar, and a piece of filter paper is moistened with the mixture and dried. After drying, a drop of pure concentrated sulphuric acid is allowed to flow over the paper, when a beautiful purple color will be produced if the slightest trace of biliary acids be present.

This is much more delicate than the ordinary method of performing Pettenkofer's test, in which the sulphuric acid is added directly to the mixture of urine and sugar. The author states that he has detected by this method the presence of biliary acids in a solution containing only 0.00003 gramme (0.00046 grain), and the writer has repeatedly detected them in a liquid by the modified test, when the ordinary test gave a negative result.

Xanthin in Urinary Calculi.—G. Lebon (*Compt. Rend.*, vol. 73, p. 47) describes an interesting calculus which was composed of an external layer of phosphate of calcium and triple phosphate, a middle layer of oxalate of calcium, and a nucleus, which formed the principal portion of the calculus, of xanthin and a small amount of urate of calcium. This portion was of a cinnamon-brown color, assumed a waxy appearance on rubbing, and the hydrochloric acid solution gave on slow evaporation crystals of chloride of xanthin. It also responded to the murexide test.

Xanthin when pure does not react to the murexide test; that is, when it is gently evaporated with a drop of dilute nitric acid, and the residue is exposed to ammonia fumes or moistened with ammonic hydrate, a purple color is not produced. If, however, the residue be treated with potassic hydrate and warmed, a purple color results, while the purple color produced by treating uric acid or a urate in the same way disappears on warming. When xanthin is mixed with uric acid, the color produced by performing the murexide test (nitric acid and ammonia) may lead one to overlook the presence of xanthin unless the precaution is taken to test with potassic hydrate and heat, and M. Lebon thinks that xanthin is considered a rare constituent of calculi, on account of the habitual neglect of this differential test.

On the Efficacy of the Methods used up to the present time for detecting small quantities of Sugar in the Urine.—J. Seegen (*Fres. Zeit.*, x. p. 501) from many experiments draws the following conclusions in regard to the sugar tests: 1, That we have no re-agent which will with absolute certainty, and with the exclusion of other substances which act in an analogous manner and which may at the same time exist in the urine, detect very small amounts of sugar in the urine. 2, That therefore all statements as to the presence of very small quantities of sugar in the urine in many physiological and pathological circumstances, are somewhat doubtful. 3, That normal urine does not contain such an amount that its presence can be detected with certainty. 4, That normal urine contains a small quantity of reducing substances, but that a portion of these is sugar, is not surely determined.

Very careful experiments by Maly (*Fres. Zeit.*, x. p. 382) have been

performed to test the delicacy of the best and most common of these tests, viz., Trommer's test, by adding to normal urine different amounts of pure grape sugar. He found that urine to which $\frac{1}{10}$ per cent. of sugar was added, underwent no change upon the addition of potassic hydrate, sulphate of copper, and heating the mixture, except a change to the normal yellow color, and a precipitation of the earthy phosphates after the addition of the first re-agent. Urine to which $\frac{5}{100}$ per cent. of sugar was added, upon being subjected to the same treatment, changed to a brownish yellow color, but no precipitation of the cuprous oxide took place. Upon the addition of $\frac{5}{100}$ to 1 per cent. of sugar, however, the precipitation of the yellow cuprous oxide (suboxide of copper) was produced. The delicacy of the test is shown by the fact that pure water containing $\frac{3}{100}$ per cent. of sugar, gave, when treated in the above manner, a precipitate of cuprous oxide. Hence there must be substances in normal urine which hold in solution the cuprous oxide formed. This action is due mainly to the presence of kreatinine, 28 milligrammes of which were found to be sufficient to retain in solution the cuprous oxide formed by the action of 10 milligrammes of sugar on sulphate of copper; it is also due partly to the presence of the coloring matters, since a smaller quantity of sugar could be detected after decolorizing the urine with animal charcoal than before.

If to the hot fluid which contains cuprous oxide in solution after the performance of Trommer's test, a little zinc oxide be added from the point of a knife, and the fluid be warmed again for a moment, a yellow layer consisting of a mixture of zinc and cuprous oxides will be deposited upon the white zinc oxide in the bottom of the test tube, the zinc oxide having displaced a portion of the cuprous oxide from the solution.

In conclusion, the advice is given, that in those cases in which there is a doubt as to the presence of sugar after the performance of Trommer's test, the urine should first be decolorized with animal charcoal, then made alkaline by the addition of an equal volume of sodic or potassic hydrate, and finally sulphate of copper added until a small quantity of the greenish-blue hydrate of copper remains undissolved upon shaking. If, after heating, no cuprous acid is precipitated, add zinc oxide as mentioned above, and then if no yellow layer is deposited after subsidence of the solids, the conclusion may safely be drawn, that no appreciable amount of sugar was present in the specimen under examination.

(To be continued.)

Iron in the Blood.—Boussingault finds the amount of metallic iron in aliments as follows:—The minimum in carrots, 0·0009 gram.; the maximum in the blood of hogs, 0·0534; in beer, ·0040. In vertebrates, the quantity of iron does not exceed a thousandth of the weight; in invertebrates, probably not four ten-thousandths. It is usual to attribute the red color of the blood to the presence of iron. Yet the white blood of invertebrates contains almost as much iron as the red of vertebrates. Also, plants, not green, like mushrooms, contain almost as much iron as the green plants. Boussingault concludes that of all substances the blood is that which contains the largest amount of iron, and of assimilable iron, since it has already been assimilated.—*Medical Press and Circular.*

Boston Medical and Surgical Journal.

Boston: Thursday, January 2, 1873.

In this first issue of the year the Journal once more appears in a new form. Among the more obvious changes is the return to the old plan of single columns, which has been adopted as offering, it is thought, certain advantages over the double column now in use for a number of years. But a much more important change has been effected than that of mere dress, one indeed, which for several months has been quietly in operation, and with what success the observant reader has already had some opportunity of judging.

Since 1828 this has been always the first and for most of the time the only Medical Journal of New England; yet it cannot be denied that it does not compare as favorably as could be wished with some of those of other cities. Absence of competition at home may explain in a great measure the want of active interest on the part of the profession, and the greatest credit is due to previous editors that they have, as it were, single handed kept the Journal so long such as it is. There is good reason to hope that brighter days are at hand.

The change to which we have referred is in the management of the Journal. As will be seen by the announcement, it has passed into the hands of a number of public spirited gentlemen, who are giving their time and money to the development of the very large resources which the leading paper of a well educated medical community like ours ought to have at its command. In addition to the very valuable aid which has been and will continue to be rendered by the board of management itself, it has been thought expedient to enlarge the editorial staff, and to attach to it a corps of editorial reporters, thereby materially increasing its working power and efficiency. The reports on the progress of medicine have met with such success during the past three months as to encourage their continuance, and we feel justified in the hope that the value of the Journal will thereby be materially increased. It is proposed to publish from time to time clinical lectures given by some of our most prominent teachers, on subjects both interesting and instructive to the general reader. Particular attention will also be paid to the department of reviews, one of the important characteristics, we think, of a good medical journal. While giving such a space to the department of medical science as our modern education demands, we shall not forget that good practical articles are of equal importance.

We are happy to take the opportunity to reply to a correspondent,

who, wishing us success, asks: "Can it not be made the organ of the profession in dealing with the public on questions which interest both, speaking out plainly and promptly, and thus giving the doctors some influence in the world's affairs?" As a rule the space hitherto reserved for editorial articles will be given up to the constantly increasing demands of other departments, but when questions arise touching the honor of the profession or the sanitary interests of the community, the JOURNAL will freely accept the responsibility which its position entails. This JOURNAL should hold a position second to none in America, and we call upon all its well-wishers to aid us to gain it.

A RETURN TO THE OLD FORM OF PAGE is not the only improvement inaugurated in the present number of the JOURNAL. Our readers will be pleased to notice the substitution of a delicate tinted paper for the white sheet heretofore serving to convey our impressions. *The British Medical Journal*, the *London Ophthalmic Hospital Reports* and other publications of note are printed on similar paper, and it is commended by the English and other oculists as having been found less fatiguing to the eyes, especially by artificial light, than any other color.

As the readers of the JOURNAL know, it has long been customary to publish in its columns the reports of deaths from chloroform in order to induce the world at large to give a fair trial to ether, from the use of which death need never occur. The work has prospered, and in spite of ignorance and misrepresentation, ether is now superseding chloroform in many places where but a few years ago it would have been scoffed at. Although we have many more reports of deaths from chloroform on hand, we propose now to drop the subject. The merits of ether and the dangers of chloroform are now too prominent to be treated with contempt; let those who use the latter account for it to their consciences and to coroners as best they can.

THE BURNING OF THE SMALLPOX HOSPITAL, which happily was not yet occupied, is not so great a calamity as might at first be supposed. We understand that the building was not a suitable one, and that the situation is very unhealthy. One of our most eminent physicians, who visited the hospital a few days before the fire, expressed to us the opinion that such patients as should escape poisoning from the effluvia of several drains which open near its marshy grounds would be likely to be roasted in case of fire should they have the misfortune to lie in the upper story. A new one-story building is to be erected, it is said,

in eleven days, and we are glad to see that work was begun as early as last Sunday. The form of the building is, we think, an improvement, but in size it is totally inadequate to meet the emergency, and the situation is the same as before. We should like to know what medical man has been consulted in this matter, and why, many weeks ago, a sufficient number of field hospitals, on the army plan, were not put up in healthy places, and a sufficient force of watchmen detailed to make incendiarism impossible.

VACCINATION AND RE-VACCINATION.—Dr. Oscar Eyselein, of Augsburg, furnishes a most exhaustive article on this subject, appearing in the *Medicinische Jahrbucher* (Jahrgang, 1872, iii. Heft). He gives a complete history of the introduction of vaccination into each of the European states, with a careful analysis of the bills of mortality before and after its general adoption. While the extreme length of this article forbids our attempting any abridgement of it, there are several branches of this subject which possess especial interest at the present time, and some of his views on these topics are, therefore, transferred to these columns.

The writer considers it as an established fact that a proper vaccination in infancy gives, in general, immunity against the smallpox with certainty until the fifteenth year, in rare instances for a life-time. From the age of fifteen, the susceptibility to the disease is, as a rule, renewed, sooner or later, according to the peculiarities of the individual. It is, therefore, important that when this age is attained, an attempt at re-vaccination should be made, and this attempt, if unsatisfactory, should be repeated from time to time until successful. A successful re-vaccination is generally regarded as giving partial or complete immunity against the contagion of smallpox, yet we are by no means justified in assuming that even this immunity lasts for a life-time. Inasmuch, therefore, as it has not yet been determined by actual observation just how long a period of protection is afforded by re-vaccination, it is wise, in persons who have attained the age of fifteen, to repeat the attempt at re-vaccination every fifth year, more especially as it is found that after the thirtieth year, the frequency and fatality of the disease increases in direct proportion to the number of years that have elapsed since the previous vaccination. When an individual who has not been re-vaccinated for a number of years is attacked with the smallpox (and this applies, in exceptional cases, to those with whom considerable time has elapsed since their primary vaccination), in times when no epidemic is prevailing, the disease assumes a modified form (varioloid). But in times of general smallpox epidemics, the susceptibility to the effects of the virus is found to be increased, especially where a considerable period has elapsed since vaccination or re-vaccination, so that the disease appears with all its unmodified and malignant symptoms.

Inasmuch as experience has shown that the single occurrence of *variola vera* does not give absolute immunity against a second attack (a second attack is apt to be even more dangerous and oftentimes fatal), it should not be regarded as surprising, especially during the

prevalence of a general epidemic, if this malady is, in exceptional cases, contracted by individuals who have been, within a longer or shorter time, vaccinated or re-vaccinated. In case of the latter, however, the liability to the disease is very much smaller, and the type milder, than in case of those who have already once been affected with the genuine smallpox.

Dr. Eyselein shows that as early as the year 1818, the idea began to gain ground that the humanized virus then employed was losing its efficacy, and recounts the efforts made to improve the quality of the virus. This was first attempted by transferring the humanized lymph to the cow, and then employing for vaccination the lymph derived from the animal (retro-vaccination). Lymph from this source was employed in Wurtemburg from the year 1818 to 1825, when attention began to be attracted to cases of cow-pox occurring spontaneously, and liberal premiums were offered to all owners of cattle affected with this disease who should bring forward their animals. The lymph derived from this source was found to be especially protective, and has, therefore, been employed since that time by that government. In Bavaria, animal virus was introduced in 1838, and means have been adopted to forward a fresh supply from the central bureau to the public vaccinators, at least once each year.

The frequent failure to obtain any result after inoculations with the animal virus is accounted for by the fact that we possess no means of distinguishing the active lymph contained in the vesicles, which are formed upon the cow, from the serum which continues to flow after the contents of the vesicles has been evacuated. Hence it happens that the vaccinator is often furnished with points or quills which have been charged with simple serum, and these, when employed for the purpose of vaccination, naturally produce a negative result. It has been urged as another objection to the use of animal virus, that the constitutional symptoms induced are often too severe. The obvious reply to this allegation is that if the virus derived from this source gives evidence of greater activity, we are thereby assured of a thorough and satisfactory inoculation, of which fact we are by no means certain when degenerate or long humanized lymph has been employed. These trivial objections, however, so far from affording any valid argument against the use of the animal virus, are really entitled to no weight, inasmuch as they are not at all applicable to humanized lymph, one or more removes from the cow. As to the transmission of other diseases by means of vaccination, an objection always to be found in the mouths of the anti-vaccination agitators, this, in the case of *scrofula* and *tuberculosis*, is of very questionable occurrence, while, as regards *syphilis*, it has been reported in a very limited number of cases. There can be no possibility of the inoculation of any other disease, provided the simple precaution is taken of never employing lymph that is tinged in the slightest degree with blood.

It is only in the most exceptional cases that the constitutional symptoms induced by vaccination assume a severe or dangerous form, and it is doubtful if there is a case on record where death can be justly ascribed to the direct result of vaccination. In Wurtemburg, during a period of five years, there were recorded 208,322 vaccinations of children, and of these the only one resulting fatally was complicated with erysipelas and gangrene. Dr. Eyselein agrees with other recent

writers in strongly condemning the use of lymph taken from re-vaccinations. According to Müller (*Berlin Klin. Woch.*, No. 28, 1871), lymph derived from this source is not identical with that obtained from primary vaccinations, but, on the contrary, is found to deteriorate with each remove, until it becomes absolutely worthless, thus leading to imperfect or spurious vaccinations.

Medical Miscellany.

THE change in the shape of the JOURNAL has occasioned some little delay in issuing the present number, and some of the arrangements with regard to paper and type are not yet fully completed.

POISONOUS PAPER SHADES. Dr. Mirus mentions two cases in Jena and one in Frankfort where persons using green glazed paper shades were attacked with symptoms of arsenic poisoning. In one case the symptoms did not cease until the use of the shade was discontinued. The heat of the lamp, volatilizing the arsenic, renders even the very small quantity present extremely dangerous. The arsenic is used in the well-known Paris green, with which not only lamp shades, but wall papers, &c., are so often colored.

ROBERT L. PACKARD has been chosen Assistant Professor of applied Chemistry in Bowdoin College.

EXTIRPATION OF THE LACHRYMAL GLAND was lately resorted to in Germany, in a case of excessive and harassing lachrymation. The relief was complete, and the eye continued moist without the gland!

PROTECTION AGAINST SMALLPOX.—A CONVERSATION.
First Year Medical Student. "What are these carbolic amulets good for?"
Third Year Student. "For the apothecaries!"

THE HOPKINS HOSPITAL, about to be built in Baltimore, for colored people, has a foundation of two millions of dollars, the bequest of the late Gerard Hopkins.

INFLUENCE OF OCCUPATION ON INCREASE OF POPULATION.—Dr. Lagneau, of the French Academy (*Gaz. Hebdomadaire*), after a searching investigation, declares that the relinquishment of country for city life involves a decided physiological decrease of population, while the abandonment of agriculture for the liberal, industrial and commercial professions leads to a diminution of births which varies according to the profession.

A YOUNG man, who has failed thus far in all ways of getting a living, advertises in a Cincinnati paper, that for a reasonable compensation he will submit himself to experimental operations at the hands of physicians and surgeons. Why didn't Prof. West know about him?

THE GENTLE BREEDING OF BOOKS.—Richard de Bury, a Bishop of Durham, in England, in the time of Henry IV., thus quaintly discourses of books: "They are the masters" (he says) "who instruct us without rods, without hard words and anger, without clothes and money. If you approach them, they are not asleep; if investigating, you interrogate them, they conceal nothing; if you mistake them, they never grumble; if you are ignorant, they cannot laugh at you."

THE Royal Institute of Science, Literature and Arts, in Venice, offers a medal of the value of 3000 francs, to be awarded in 1874, to the best essay on the following subject :—"The advantages derived by the medical sciences, especially physiology and pathology, from modern discoveries in physics and chemistry ; with a retrospective view of the systems which prevailed in medicine in past times." The competition is open to foreigners, and the essays may be written in French.—*Nation*, Nov. 21, 1872.

JENNER.—One of the first sculptors of Rome is engaged on a work of great interest to the Profession and the public. Monteverdi, whose wonderful success in the statues of the genius of Franklin and the youth of Christopher Columbus, is now at work on a companion statue that is worthy of its predecessor. Its subject is the genius of Jenner.

A GOOD EXAMPLE.—A few weeks since the Reverend Canon Charles Kingsley, in his presidential address to the Birmingham Midland Institute, recommended with great earnestness and eloquence the teaching of art, and also the encouragement of the practice of preserving health. The Birmingham papers announce that this good advice has been followed by an anonymous benefactor investing £2,500 to establish a professorship on that subject

DR. SPAETH was formally installed Rector of the University of Vienna on the 18th of November.

MARRIED,—At Boston Highlands, 26th ult., Dr. Edward S. Wood, of Cambridge, to Miss Irene Eldridge Hills. [No cards.]

BOOKS RECEIVED.—Obstetric Aphorisms, for the use of Students commencing Midwifery Practice. By Joseph G. Swayne, M.D., Physician Accoucheur to the British General Hospital, &c. Second American Edition. Philadelphia: H. C. Lea. 1873. Pp. 189. (From A. Williams & Co.)—Clinical Lectures on Diseases peculiar to Women. By L. Atthill, M.D., Vice President Dublin Obstetrical Society, &c. Second Edition. Philadelphia: Lindsay & Blakiston. 1873. Pp. 241. (From A. Williams & Co.)—Fœticide, or criminal Abortion; a Lecture. By Hugh L. Hodge, M.D. Fourth Edition. Philadelphia: Lindsay & Blakiston. 1872. Pp. 55. (From A. Williams & Co.)—The Expression of the Emotions in Man and Animals. By Charles Darwin, M.A., F.R.S., &c. New York: D. Appleton & Co. 1873. Pp. 374. (From A. Williams & Co.)

PAMPHLETS.—The Dangers of Chloroform, and the Safety and Efficiency of Ether, as an Agent in securing the avoidance of Pain in Surgical Operations. By J. Morgan, M.D., F.R.C.S, &c. London: 1872. Pp. 45.—Eighth Annual Catalogue of the Officers and Students of the Institute of Technology. Boston: 1872. Pp. 75.

Deaths in fourteen Cities and Towns in Massachusetts, for the week ending Dec. 21, 1872.

Boston, 196—Charlestown, 10—Worcester, 23—Lowell, 17—Milford, 2—Salem, 7—Lawrence, 18—Springfield, 4—Lynn, 13—Gloucester, 3—Fitchburg, 2—Newburyport, 4—Somerville, 4—Haverhill, 5. Total, 308.

Prevalent Diseases.—Smallpox, 81—consumption, 44—pneumonia, 19—typhoid fever, 12—scarlet fever, 10.

The deaths from smallpox were as follows: Sixty-nine in Boston, four in Lawrence, three in Charlestown, two in Newburyport, one in Worcester, one in Somerville and one in Haverhill.

GEORGE DERBY, M.D.,
Secretary of the State Board of Health.

DEATHS IN BOSTON for the week ending Saturday, December 28th, 167. Males, 85; females, 82. Accident, 5—apoplexy, 2—inflammation of the bowels, 1—disease of brain, 7—bronchitis, 4—consumption, 17—convulsions, 2—croup, 6—cyanosis, 2—debility, 1—diarrhœa, 1—dropsy, 1—dropsy of the brain, 1—scarlet fever, 6—typhoid fever, 3—gastritis, 2—disease of heart, 6—disease of kidneys, 1—disease of liver, 1—laryngitis, 2—congestion of lungs, 2—inflammation of lungs, 15—marasmus, 1—measles, 1—mortification, 1—old age, 4—paralysis, 2—pleurisy, 1—premature birth, 2—peritonitis, 1—puerperal disease, 1—smallpox, 63—unknown, 2.

Under 5 years of age, 57—between 5 and 20 years, 24—between 20 and 40 years, 53—between 40 and 60 years, 15—over 60 years, 18. Born in the United States, 102—Ireland, 36—other places, 29.